



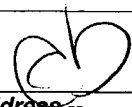
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/868,901	07/09/2001	Masaro Tamatsuka	P10724200019	1242
4372	7590	04/02/2004	EXAMINER	
ARENT FOX KINTNER PLOTKIN & KAHN 1050 CONNECTICUT AVENUE, N.W. SUITE 400 WASHINGTON, DC 20036			KUNEMUND, ROBERT M	
			ART UNIT	PAPER NUMBER
			1765	

DATE MAILED: 04/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/868,901	TAMATSUKA	
	Examiner	Art Unit	
	Robert M Kunemund	1765	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2004.
- 2a) ☒ This action is **FINAL**.      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 7-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 7, 8, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horai et al (6,113,687) or JP 11-199385.

The Horai et al and JP 11-199385 references teach a silicon wafer and a czochralski process of producing the wafer. From a silicon melt, a crystal is pulled by the czochralski method. The speed and gradients across the growing crystal can be varied to create a specific silicon crystal. The speed and gradients are set such that an OSF ring is created at the periphery of the crystal. When the crystal is sliced into a wafer the OSF ring is on the periphery of the wafer. The sole difference between the instant claims and the prior art is the OSF ring touching a boat side, note entire references and more particularly Horai, col. 4 and in JP 11-199385 translated abs.

However, it would have been obvious to one of ordinary skill in the art that when a wafer with an OSF ring on the periphery is placed in a boat that the OSF ring would contact the boat side.

Claims 9, 10, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horai et al (6,113,687) or JP 11-199385 both in view of Jp 1195565.

The Horai et al and JP 11-199385 references are relied on for the same reasons as stated, supra, and differ from the instant claims in the nitrogen content. However, the Jp 1195565 reference teaches czochralski growth of silicon and silicon wafer s where the nitrogen content is within the claimed range, note translated abs. It would have been obvious to one of ordinary skill in the art to modify the Horai et al and JP 11-199385 references by the teachings of the Jp 1195565 reference in order to reduce dislocations in the silicon.

#### *Response to Applicants' Arguments*

Applicant's arguments filed January 14, 2004 have been fully considered but they are not persuasive.

Applicants' argument concerning the OSF ring in the prior art is noted. However, the Horai et al reference does teach that the OSF ring can be in the peripheral of the silicon wafer. The reference shows in the figures that at certain pull rates the OSF is at the peripheral. It is noted, that the reference prefers to place the OSF at a different section of the wafer but that does not limit the teachings of the reference to the preferred embodiment. Thus, the combined prior art of record does teach the claimed

invention. Further, the art does teach that the OSF ring placement can be varied by merely changing the pulling rates. Therefore, any changes in the prior art would have been well within the skill of the art.

Applicants' argument concerning that OSF placement is not obvious has been considered and not deemed persuasive. The prior art clearly teaches that by changing pull rates and other parameters the OSF ring can be formed in any place in the wafer cross section. The fact that applicants have a different reason for doing what is suggested by the prior art is not demonstrative of unobviousness. Further, the claims are silent to the issue of slip or dislocations and thus the argument is deemed moot, as the art need not meet unclaimed limitations.

Applicants' argument concerning claims 9, 10, 13 and 14 is noted. However, the Jp 656 reference is relied on solely to show the art conventionality of the nitrogen content, which is being claimed. The examiner has not used the reference to teach the OSF placement. The reference gives sufficient motivation for the combination with the other references. Also, the reference does teach the nitrogen content as claimed and renders the nitrogen content of the claims well within the skill of the art.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert M Kunemund whose telephone number is 571-272-1464. The examiner can normally be reached on 8 hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RMK



ROBERT KUNEMUND  
PRIMARY PATENT EXAMINER  
A.U. 1765